

REMARKS

Claims 1-5, 8-16, 18-20 and 28-31 remain pending in this application. Applicants acknowledge with thanks the indication that claims 11, 12, 28 and 29 would be allowable if rewritten in independent form. Reconsideration and allowance of the pending claims in light of the remarks presented herein are respectfully requested.

Claims 1-5, 8, 18, 19, 20 and 30 are rejected under 35 USC 103(a) on Yamamoto (US 2003/0121685 or US 7,007,762) in view of Ookawa (US 5,796,226). Claims 9, 10, 13-16 and 31 are rejected under 35 USC 103(a) on Yamamoto in view of Kaplan (US 6,819,008). These rejections are respectfully traversed.

Claim 1 recites a controller configured to apply a single predetermined angle correction factor to a portion of a predetermined advance angle profile covering a range of different rotor speeds. Claims 8 and 18-20 incorporate similar recitations. Claim 9 recites a method including producing a single angle correction factor for a portion of an advance angle profile covering a range of different rotor speeds. Claim 16 incorporates similar recitations.

The Examiner relies on Yamamoto as teaching the invention of claims 1, 8, 9, 16 and 18-20 except for covering a range of different rotor speeds, for which the Examiner refers to Ookawa and Kaplan. In particular, the Examiner relies on Yamamoto as teaching applying a single angle correction factor to, and producing a single angle correction factor for, a portion of a predetermined advance angle profile.

However, the portions of Yamamoto on which the Examiner relies for this teaching, FIG. 5 and paras [0041] – [0043], [0047] and [0048], do not disclose applying a single angle correction factor to a portion of a predetermined advance angle profile, and do not disclose producing a single angle correction factor for a portion of a predetermined advance angle profile.

While the advance angle map stored by the controller of Yamamoto defines an advance angle profile, the controller does not apply a correction factor to any of the values stored by the map, nor is a correction factor produced for any of the values stored by the map. Instead, the controller of Yamamoto selects from the map an advance angle that corresponds to battery

voltage and current. After selecting an advance angle, the controller does not then correct the selected angle. See Yamamoto, paras [0047] and [0048].

In support of this rejection in the second paragraph of the table on page 2 of the Action, the Examiner appears to take the position that each angle stored by the advance angle map of Yamamoto is a correction factor. Since Yamamoto discloses that each angle stored by the map is used to excite the winding in advance of the rotor so as to reduce a phase shift that arises between the winding current and the induced voltage, one might consider each angle stored by the advance angle map to be a correction factor. However, these angles are not applied to or produced for the stored advance angle profile. Rather, each angle represents a point on the stored advance angle profile.

Further, none of the cited references discloses or suggests applying a single angle correction factor to, or producing a single angle correction factor for, a portion of a predetermined advance angle profile covering a range of different rotor speeds as claimed.

Yamamoto applies different advance angles that vary with battery voltage and current, as shown in FIG. 5 of Yamamoto. Ookawa and Kaplan both apply different correction factors that vary with speed as explained in the August 11, 2009, Response.

As further explained in the August 11, 2009, Response, the present invention has the advantage of providing a controller that compensates for tolerances in motors coming off the assembly line through the use of a common map and a single correction factor that can be used for each motor irrespective of the speed of each motor over a range of different rotor speeds. The performance of the motors can therefore be improved in manner that is quicker and cheaper than employing high-precision manufacturing such that the tolerances are relatively tight or generating a full map customized to each motor or adjusting the control map on the fly as disclosed by the cited references.

Accordingly, because Yamamoto does not provide the teachings for which it is cited, and the cited references do not disclose or suggest all of the elements required by claims 1, 8, 9, 16

and 18-20, the rejection under 35 USC 103 of claims 1, 8, 9, 16 and 18-20 and the claims depending thereon should be withdrawn.

In view of the above, early action allowing claims 1-5, 8-16, 18-20 and 28-31 is solicited.

In the event the Patent and Trademark Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 424662013300.

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